Chapter 3

FP Module

SECTION I – INTRODUCTION TO FP MODULE

GENERAL INFORMATION

3-1. A FP module is the basic building block for larger FP systems. One 550-person FP unit is termed a module. As many as six modules may be joined depending upon the mission. The major FP subsystems may also be rearranged to hold a particular terrain, mission, local utility support, or area constraint.

3-2. The FP module consists of existing and new CSS equipment. It is built around specific subsystems, some of which are only found in a FP module (containerized latrine, water, the all-electric kitchen, and the containerized batch laundry). Not all modules are identical. Throughout the production cycle of the planned 36 modules, modifications and improvements have been made to the module under production at that time. Module configurations are listed in Appendix B. A sample layout of the FP system is shown in Figure 3-1.

3-3. Aside from efficiency, a major factor in the design of the module was storage and ease of transportation. The system is packaged in about 100 TRICONs. Each TRICON's outside dimensions of are 8 by 8 by 6½ feet. It weighs under 10,000 pounds. Containerized latrines and batch laundry subsystems are housed and shipped in 20-foot containers. Modules are Army pre-positioned stock, available for deployment/placement, by air, land or sea, from either CONUS depots or pre-positioned ships.

3-4. A FP module contains 11 major functional areas, also known as FP module subsystems. In some cases, a subsystem may be located at more than one site, such as the latrine and shower; or may be large and dispersed, such as graywater collection. The major subsystems of a FP module are:

- Billeting TEMPER with ECU for heating and cooling
- Administrative facility
- Morale, welfare, and recreation facility
- Portable field shower assembly (12-head) or containerized shower (depending on the module)
- Containerized batch laundry
- Containerized latrine
- Food service subsystem (all electric)
- Bulk fuel storage and distribution system

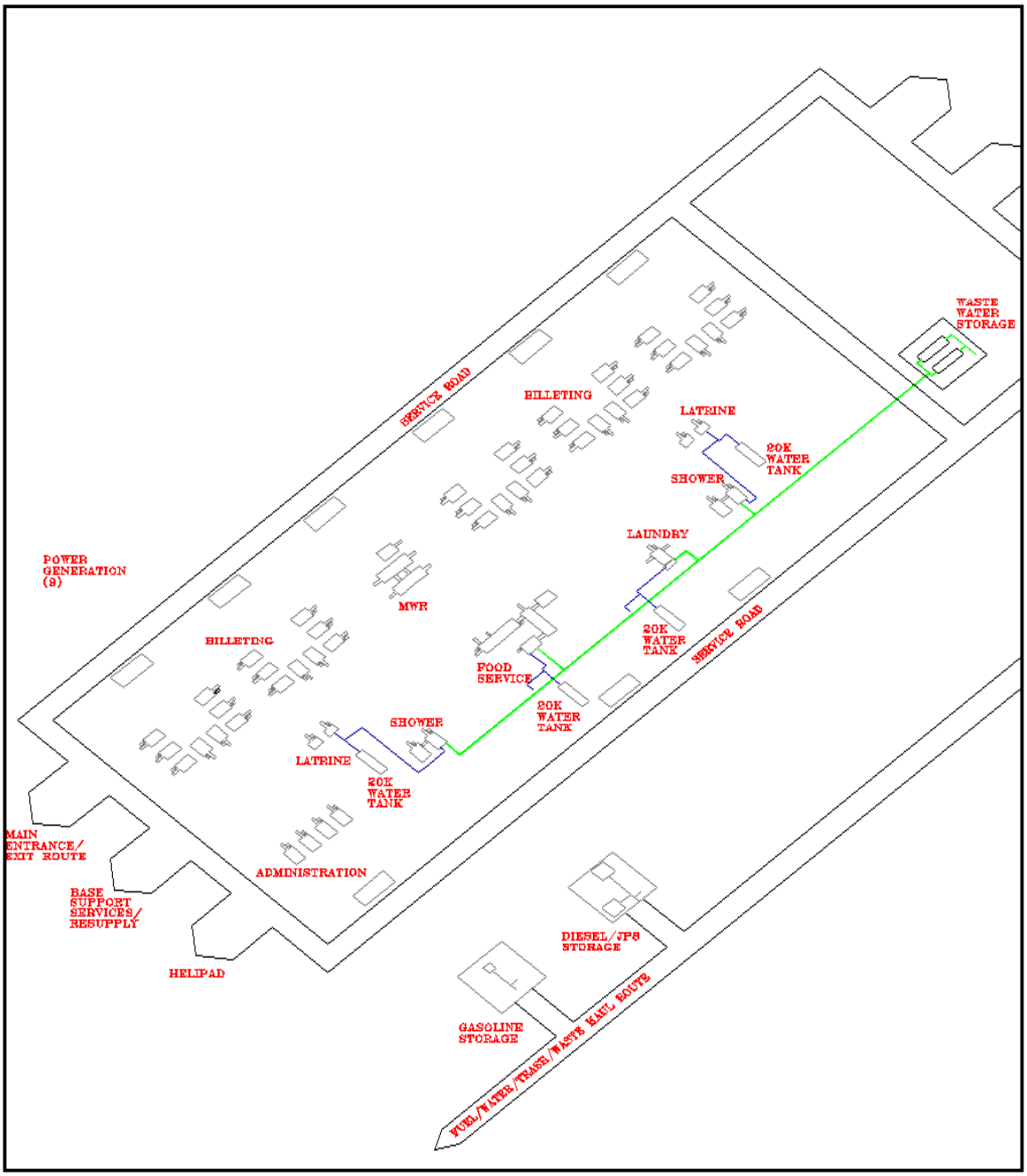

Figure 3-1. FP Module Layout

- Potable water storage and distribution system
- Graywater collection system
- PDISE

MAST

3-5. Current initiatives underway by the FP PM office include development of the Maintain, Account, Sustain and Train informational database system for FP. The MAST system will use AIT to support asset inventory by tagging durable and non-expendable components. The automated asset inventory will enhance the maintenance, accounting, sustaining, and training capabilities of FP modules, with specific emphasis on operator/camp manager requirements. It is being designed to interface with GCSS-Army database. (GCSS-Army web site: http://www.cascom.army.mil/automation/gcss-army_global_combat_support_system-army). Specific MAST capabilities will include the following:

- Enhance inventory speed and accuracy for both deployment and retrograde.
- Enhance maintenance by providing additional links and information resources for identification of FP validated substitutes and spare parts.
- Provide inventory management and operational status tracking.
- Provide technical and operational data for both the overall system and appropriate subsystems.
- Provide early data reporting to FP PM of maintenance and inventory status of retrograde material.

SECTION II – FP SUBSYSTEMS

TEMPER

3-6. The heart of the FP module is the TEMPER. It provides climate-controlled billeting and supports facilities for customer/tenant functions. The TEMPER is equipped with Bruce lights, convenience outlets, fabric flooring, heating and air-conditioning, as well as vestibules and bump-through doors. Each billet TEMPER is equipped with 15 cots and footlockers, chairs and cleaning supplies. TEMPERs are constructed in 8-foot sections. A 32-foot TEMPER has four 8-foot sections, and requires 11 soldiers to erect (leader and two soldiers per arch). Table 3-1 shows Tempers in a typical FP module:

Table 3-1. TEMPERs in a Typical FP Module

AREA	TEMPERS		
	32-foot	64-foot	96-foot
Customer Billeting	38		
Operator Billeting	6		
Administrative/Medical/MWR services	6		
MWR facility		2	
Chaplain facility	1		
Sanitation and preparation of food	2		
Dining facilities		1	1
CBL	1		
Field shower subsystem (2 each)	4		
Containerized shower subsystem	2		

3-7. ARTEP 42-424-30 MTP contains Crew Drills 42-2-D001, 42-2-D002 and 42-2-D003 for the set up, operation, and dismantling of the TEMPER. Available publications on the TEMPER and auxiliary equipment are:

- TM 5-4120-390-14
- TM 10-5419-200-12
- TM 9-6150-226-13
- TM 9-6150-226-23&P
- TM 10-8340-224-13
- TM 10-8340-224-23&P

ADMINISTRATIVE SUBSYSTEM

3-8. The administrative subsystem provides facilities for administrative support, medical support and chaplain services. The six 32-foot TEMPERs, which share a common area, are used for:

- **Administrative.** Provides space for the FP Company to control day-to-day operations of the module; includes tables and chairs.
- **Medical.** Provides a space for user unit or medical personnel and equipment to occupy in support of a particular FP mission; includes tables, chairs, cots, and a first aid kit.
- **Chaplain.** Provides space for user unit or chaplain personnel and equipment to occupy in support of a particular FP mission; includes tables, chairs and assorted religious items.

3-9. ARTEP 42-424-30 MTP contains Crew Drills 42-2-D001, 42-2-D002, and 42-2-D003 for the set up, operation, and dismantling of the TEMPER. Available publications on the TEMPER and auxiliary equipment are:

- TM 10-8340-224-13
- TM 10-8340-224-23&P
- TM 5-4120-390-14
- TM 10-5419-200-12.
- TM 9-6150-226-13
- TM 9-6150-226-23&P

MORALE, WELFARE AND RECREATION SUBSYSTEM

3-10. The MWR subsystem consists of two 64-foot TEMPERs and one 32-foot TEMPER, with ECUs and cleaning supplies to house MWR functions/services to support FP. These services may include finance, mail handling, telephones, barber shop, recreational facility, personnel services and a post exchange. Limited recreational equipment may be included, such as tennis tables, weights, and big-screen TV with VCR and satellite dish.

3-11. ARTEP 42-424-30 MTP contains Crew Drills 42-2-D001, 42-2-D002 and 42-2-D003 for the set up, operation, and dismantling of the TEMPER. Available publications on the TEMPER and auxiliary equipment are:

- TM 10-5419-200-12
- TM 10-8340-224-13
- TM 10-8340-224-23&P
- TM 9-6150-226-13
- TM 9-6150-226-23&P
- TM 5-4120-390-14

SHOWER SUBSYSTEM

3-12. The portable field shower assembly is familiar to most field service personnel. The housing facility for this shower is what makes it different from other standard setups. The shower is housed in a climate-controlled TEMPER joined by a vestibule to another TEMPER for use as a changing area. Eleven soldiers are required to erect the 32-foot TEMPERs (leader and 2 soldiers per arch). After the TEMPER has been erected, only three soldiers are required to set up the remainder of the facility. Figure 3-2 shows the major components of the shower subsystem.

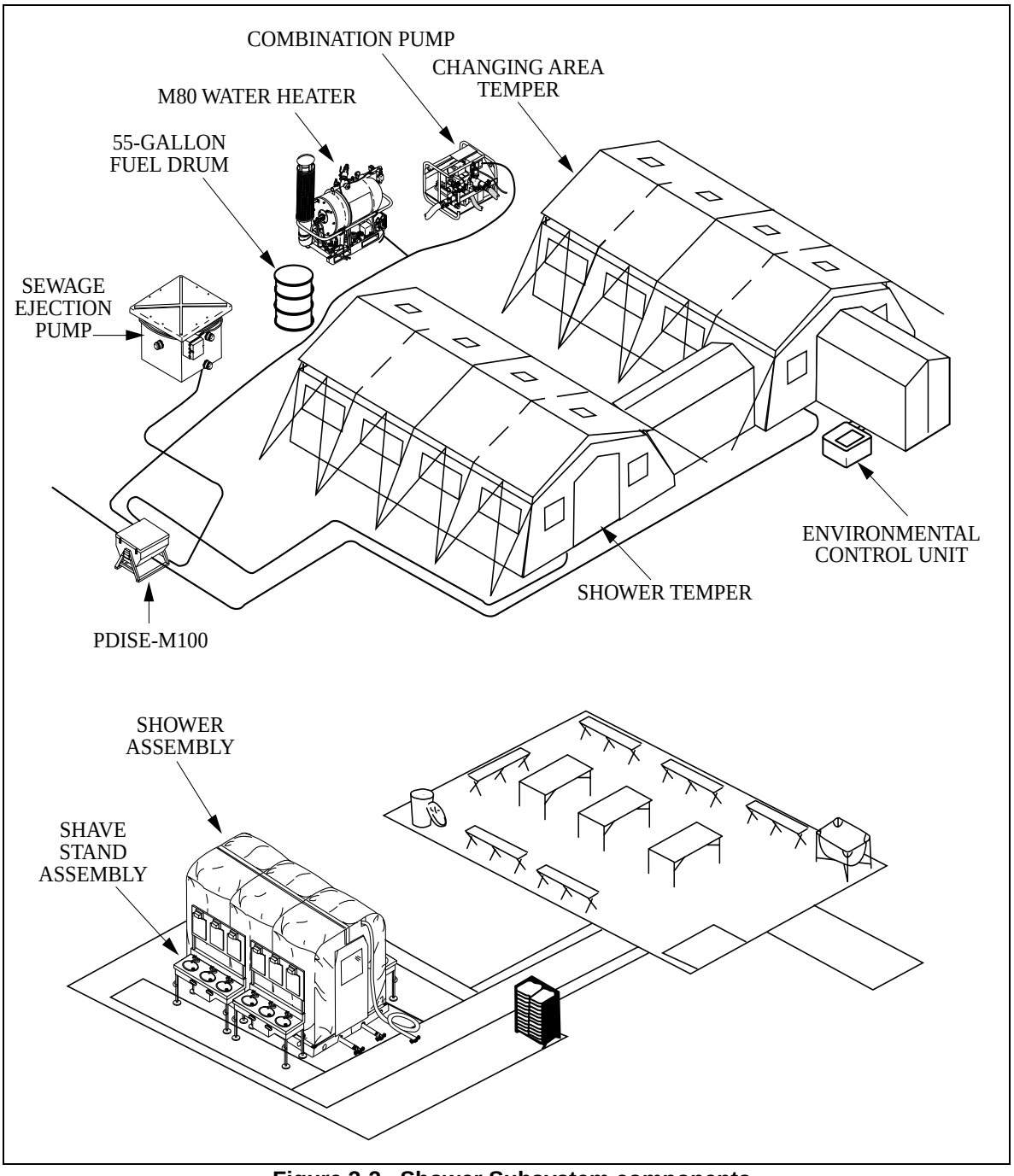

Figure 3-2. Shower Subsystem components.

3-13. A FP module contains two Shower Subsystems. Key components of each shower facility include:

- Two 32-footTEMPERS, vestibule and furniture
- Portable field shower assembly (12-head) with accessories
- Shave stand assemblies
- Combination pump with hoses and fittings
- M-80 Water heater
- SEP and hoses
- PDISE and cables
- ECU

3-14. ARTEP 42-424-30 MTP contains Crew Drills 42-2-D001, 42-2-D002, and 42-2-D003 for the setup, operation, and dismantling of the TEMPER. Crew Drills 42-2-D008 and 42-2-D009 are provided for the setup, maintenance, operation, and dismantling of the 12-head shower. Available publications on the shower subsystem and auxiliary equipment are:

- TM 10-4520-259-13&P
- TM 10-5419-200-12
- TM 10-8340-224-13
- TM 10-8340-224-23&P
- TM 5-4120-390-14
- TM-9-6150-226-13
- TO 35E35-4-1
- TO 35E35-3-1

CONTAINERIZED SHOWER

3-15. A containerized shower is being developed for future modules. It will house 12 private shower stalls, with separate water controls for each stall. A 32-foot TEMPER for shave stands and a changing area will be included in the subsystem.

CANTAINERIZED BATCH LAUNDRY

3-16. The containerized batch laundry subsystem consists of a 20-foot modified general cargo container and TEMPER. It houses two commercial-duty washers and dryers permanently mounted within the container. A modified end wall attaches to a standard 32-foot TEMPER for use as a workstation. A leader and two soldiers are required to set up the CBL. Eight additional soldiers are required to erect the TEMPER, position the M-80 water heater, and install the CBL exhaust fan. See Figure 3-3 for sample layout of the CBL facility.

3-17. A FP module contains one CBL. Major components of the CBL include:

- Modified general cargo container
- One 32-foot TEMPER with modified endwall
- M-80 water heater
- SEP and hoses
- PDISE and cables
- ECU

3-18. ARTEP 42-424-30 MTP contains Crew Drills 42-2-D0004 and 42-2-D005 for the set up, maintenance, and dismantling of the containerized batch laundry. Available publications on the CBL and auxiliary equipment are:

- Commercial Technical Instructions: Cissell 75-pound Laundry Dryer Owner's Manual (MAN354)
- FM 10-280
- Raytheon Unimac Microcomputer Controlled Free-Standing Washer/Extractor Technical Manual (P/N 230510)
- Raytheon Unimac WE-6 Microcomputer Programming Manual for UF Freestanding Models (P/N 230525)
- TM 10-3510-223-13&P
- TM 10-4520-259-13&P
- TM 10-5419-200-12
- TM 10-8340-224-13
- TM 10-8340-224-23&P
- TM 5-4120-390-14
- TM 55-8115-204-23&P
- TM 9-6150-226-13
- TM 9-6150-226-23&P

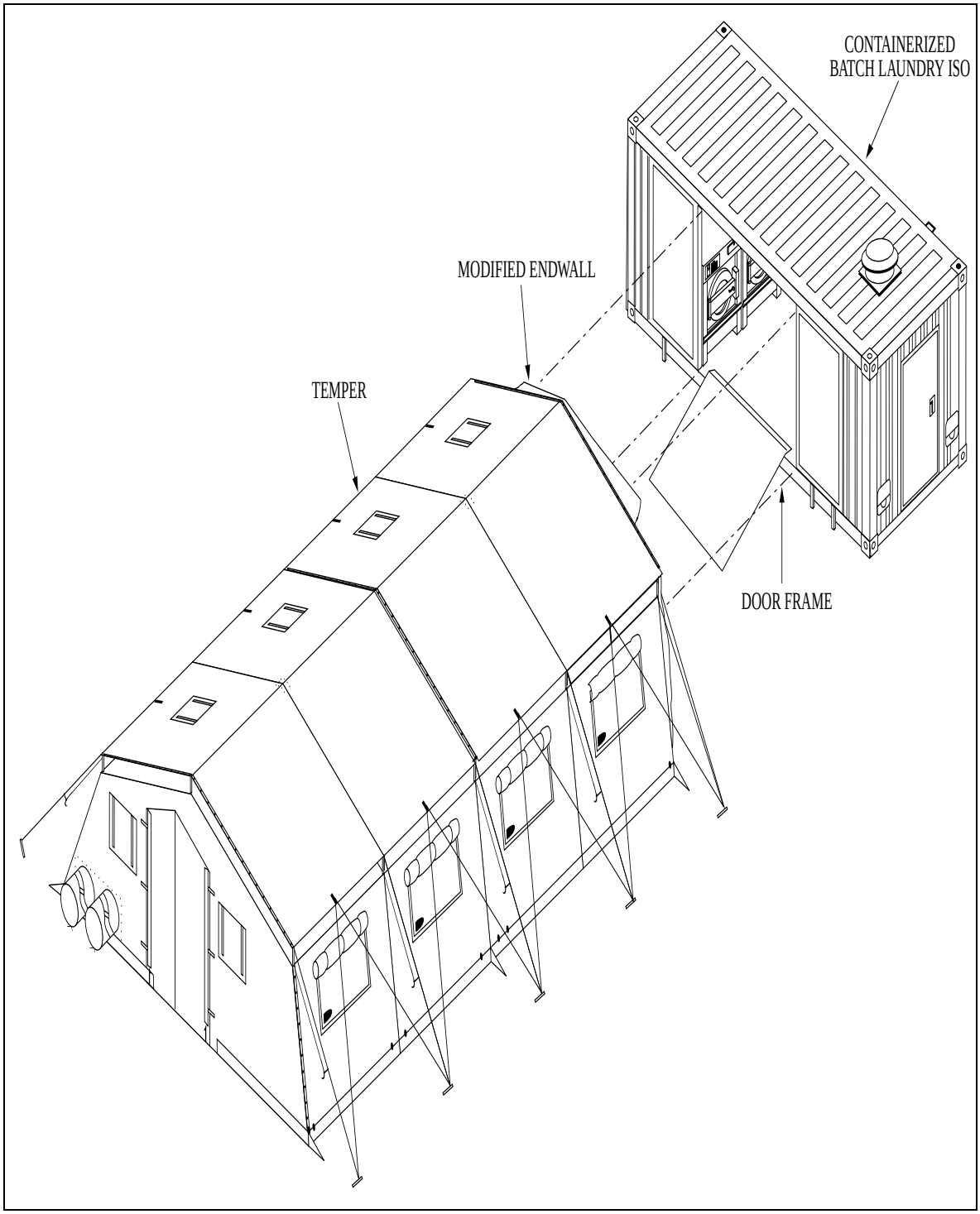

Figure 3-3. Containerized Batch Laundry Subsystem

CONTAINERIZED LATRINE

3-19. The containerized latrine is housed in a 20-foot modified general cargo container that includes all the equipment necessary to operate it. A double sink, three-person urinal, six toilets, a water heater, utility connectors (potable water, blackwater, and electrical), exhaust fan, and a circuit breaker panel are permanently installed within the container. The containerized latrine uses utility/service panels for easy connection and control of potable water, blackwater, and electrical power. Blackwater is contained in the main waste tank below the toilets and collected with the WWVT/T through the service panel. One containerized latrine is designed to support 150 personnel on a continuing basis. A leader and two soldiers are required to set up the latrine. Two additional soldiers are temporarily required to assist in the installation of the ECU. See Figure 3-4 for the containerized latrine subsystem.

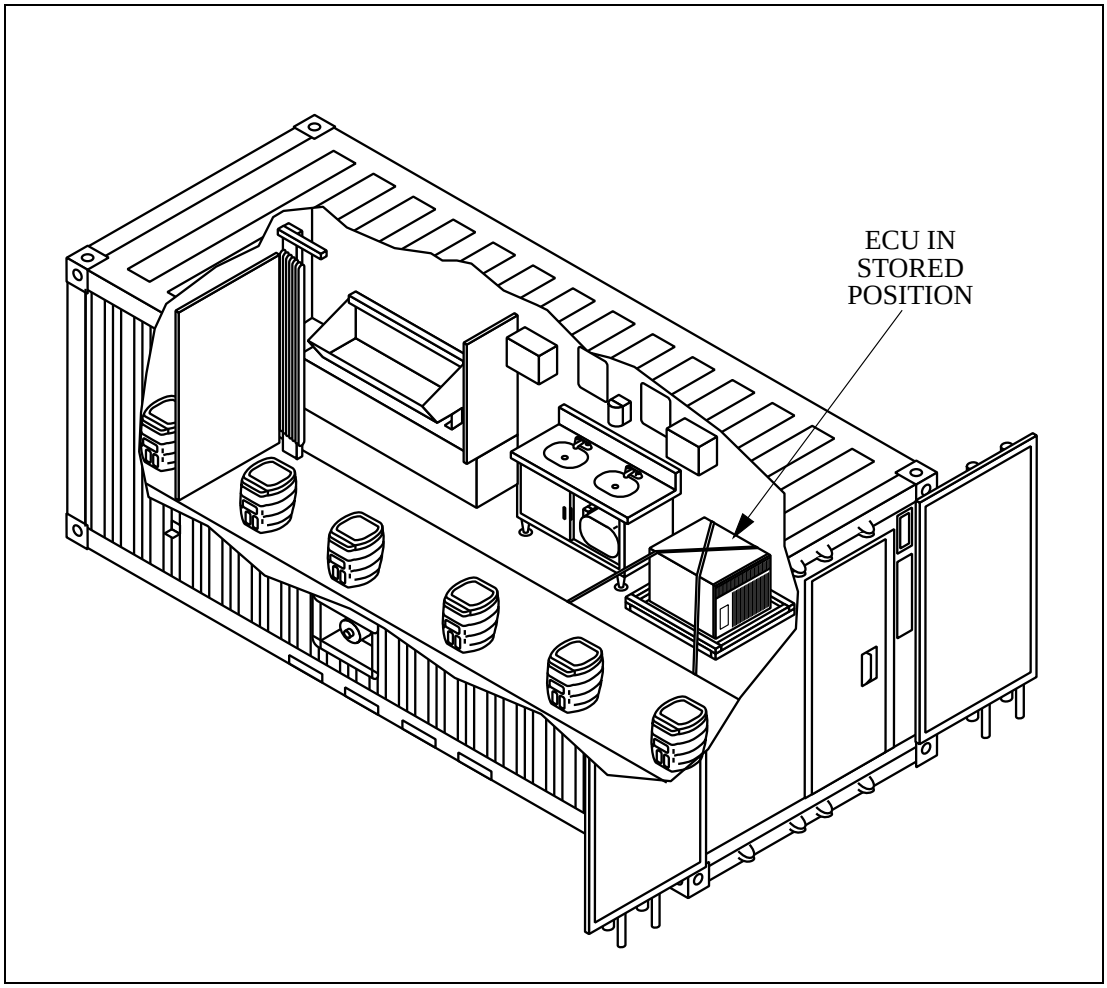

Figure 3-4. Containerized Latrine Subsystem

3-20. A FP module contains four containerized latrines within the subsystem. Key components of each containerized latrine include:

- Modified general cargo container
- ECU
- PDISE and cables
- Potable water system
- Blackwater system
- Optional use: 3K collapsible fabric storage tank and pump

3-21. ARTEP 42-424-30 MTP contains Crew Drills 42-2-0006, and 42-2-0007 for the set up and dismantling of the containerized latrine. Available publications on the CL and auxiliary equipment are:

- TM 10-5419-200-12
- TM 5-4120-390-14
- TM 5-5430-225-12&P
- TM 5-5430-227-12&P
- TM 55-8115-204-23&P
- TM 9-6150-226-13
- TM 9-6150-226-23P
- Commercial Technical Instructions: *Friedrich Room Air Conditioner Operating Guide* (920-003-02)
- *Friedrich Room Air Conditioner Installation Instruct*ions (920-036-00)
- *Zoeller Sump Pump* (Section: 6.10.020 FM 0447)
- *Atwood L.P.Gas Water Heater* (MPD 93756*)*
- *Thetford Toilet Owner's Manual* (Form No. 24836)

FOOD SERVICE SUBSYSTEM (ALL ELECTRIC)

3-22. The FP Food Service Subsystem consists of climate-controlled TEMPER facilities for dining, food preparation, kitchen and sanitation areas and the necessary equipment to provide three hot meals daily. The TEMPERs are joined together with vestibules and bump-through doors. A leader and 26 soldiers are required to set up the 96-foot dining TEMPER. The remaining TEMPERs will require two men per arch for erection. A Utilities Equipment Repairer, MOS 52C, is required to supervise and assist in erecting the 600 cubic-foot walk-in refrigerators, positioned outside the food preparation area. See Figure 3-5 for a sample layout of the food service subsystem.

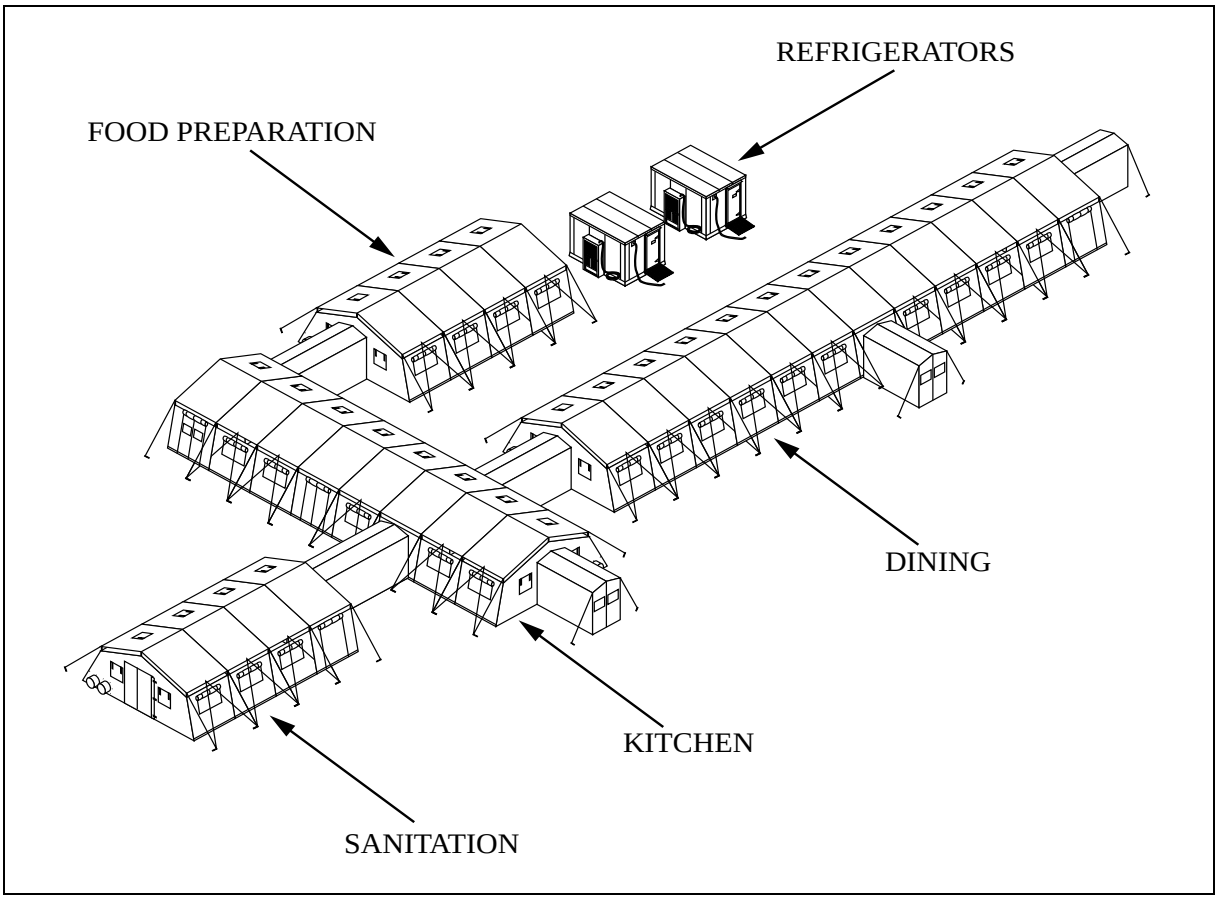

Figure 3-5. FP Food Service Subsystem (all electric)

3-23. A typical FP module contains one all-electric food service subsystem. Key Components of the food service subsystem include:

- 96-foot TEMPER for the dining area with furniture
- 64-foot TEMPER for the kitchen area
- 32-foot TEMPER for the sanitation area
- 32-foot TEMPER for the food preparation area
- Two 600-cubic foot walk-in refrigerators
- Graywater hoses and equipment
- Potable water hoses and equipment
- PDISE and cables
- ECUs
- M-80 water heater
- Grease trap

- Food Preparation equipment (major items are listed below):
  - 2 forced convection double ovens
  - 2 stand-mounted griddles
  - 2 floor-mounted, 30-gallon tilt braising pans
  - 2 floor-mounted, 20-gallon steam kettles
  - 2 floor-mounted, 5-pan opening steam tables, serving and sanitation equipment and accessories

3-24. ARTEP 42-424-30 MTP contains Crew Drills D-42-2-D0013 and 42-2-D0014 for the set-up, maintenance, and dismantling of the food service subsystem. Available publications on the food service subsystem are:

- TM 10-4520-259-13&P.
- TM 10-5419-200-12
- TM 10-8340-224-13
- TM 10-8340-224-23&P
- TM 5-4120-390-14
- TM 9-4110-241-13
- TM 9-6150-226-13
- TM 9-6150-226-23&P

BULK FUEL STORAGE AND DISTRIBUTION SUBSYSTEM

3-25. The petroleum storage and distribution subsystem provides JP-8/diesel fuel and MOGAS for FP operations. It consists of three separate functional areas/capabilities: Bulk JP-8/Diesel Fuel Storage and Distribution, Bulk Gasoline Storage and Distribution, and an optional JP-8/Diesel Fuel Storage and Distribution to support Army Prime Power. Organic equipment authorized to the FP Company includes a 5,000-gallon tanker and two 1,200 gallon-tank and pump units for refueling 500 gallon drums at each of the nine power generation clusters within the area of operations. The Petroleum Storage and Distribution Subsystem does not require electrical power generation for its operations. A drill leader and four soldiers are required for setup of the system. See Figure 3-6 for equipment within the subsystem. Major components of the subsystem are listed below.

3-26. Bulk JP-8/diesel fuel storage and distribution equipment consists of:

- FARE with 100-GPM pumping assembly and 100-GPM filter/separator and required hoses
- Two 10,000-gallon collapsible fabric tanks
- Two berm liner assemblies
- Various adapters
- Hoses
- Fuel spillage control equipment
- Nine 500-gallon drums for each power generation cluster

3-27. Bulk gasoline storage and distribution equipment consists of:

- Three 500-gallon collapsible fabric drums
- FARE with 100-GPM pump and 100-GPM filter/separator and required hoses
- Various adapters
- Two nozzle assemblies
- Hoses
- Fuel spillage control equipment
- Five-gallon fuel cans for transporting fuel to water chillers

3-28. The optional Bulk JP-8/Diesel Storage and Distribution equipment for Army Prime Power consists of:

- Two 10,000-gallon collapsible fabric tanks with berm liner assemblies
- 1 1/2-inch hoses and adapters for connection to Prime Power generation sets

3-29. ARTEP 42-424-30 MTP contains Crew Drills 42-2-D0010, 42-2-D0011, and 42-2-D0012 for the setup, operation, and dismantling of the bulk fuel storage and distribution subsystem. Available publications on the bulk fuel storage and distribution subsystem are:

- TM 10-5419-200-12
- TM 10-8110-201-14&P
- TM 5-6630-218-10
- TM 5-5430-210-12

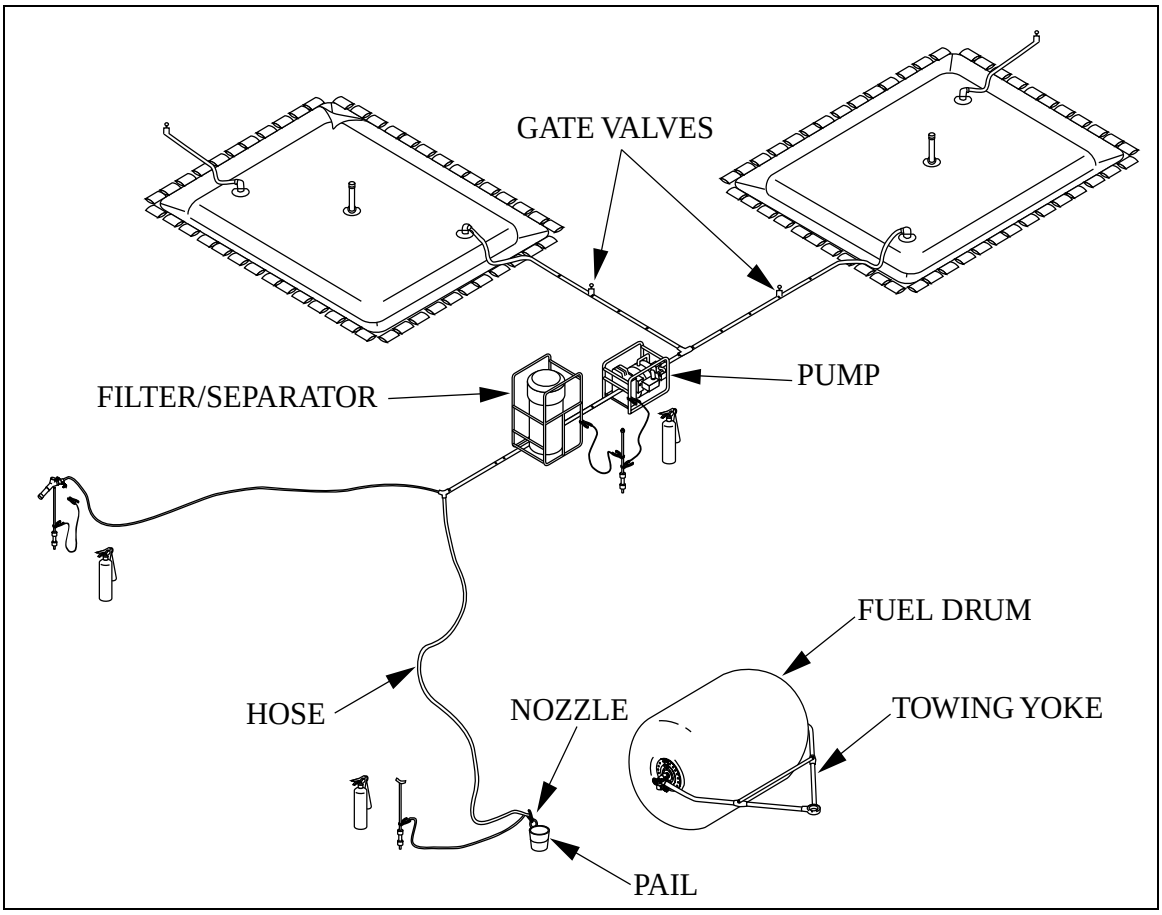

Figure 3-6. Fuel Storage and Distribution Equipment

POTABLE WATER DISTRIBUTION AND STORAGE SUBSYSTEM

3-30. The potable water distribution and storage subsystem consists of four 20,000-gallon storage and distribution sites, which provide potable water to the laundry, shower, food service, and latrine subsystems, and on occasion the medical facility. Also provided are four 400-gallon water tank trailers with water chillers to distribute water to other locations within the area of operations. A drill leader and four soldiers are required for setup of a water distribution site. After the storage tank is set up, two soldiers may be released. See Figure 3-7 for sample layout of the water distribution system.

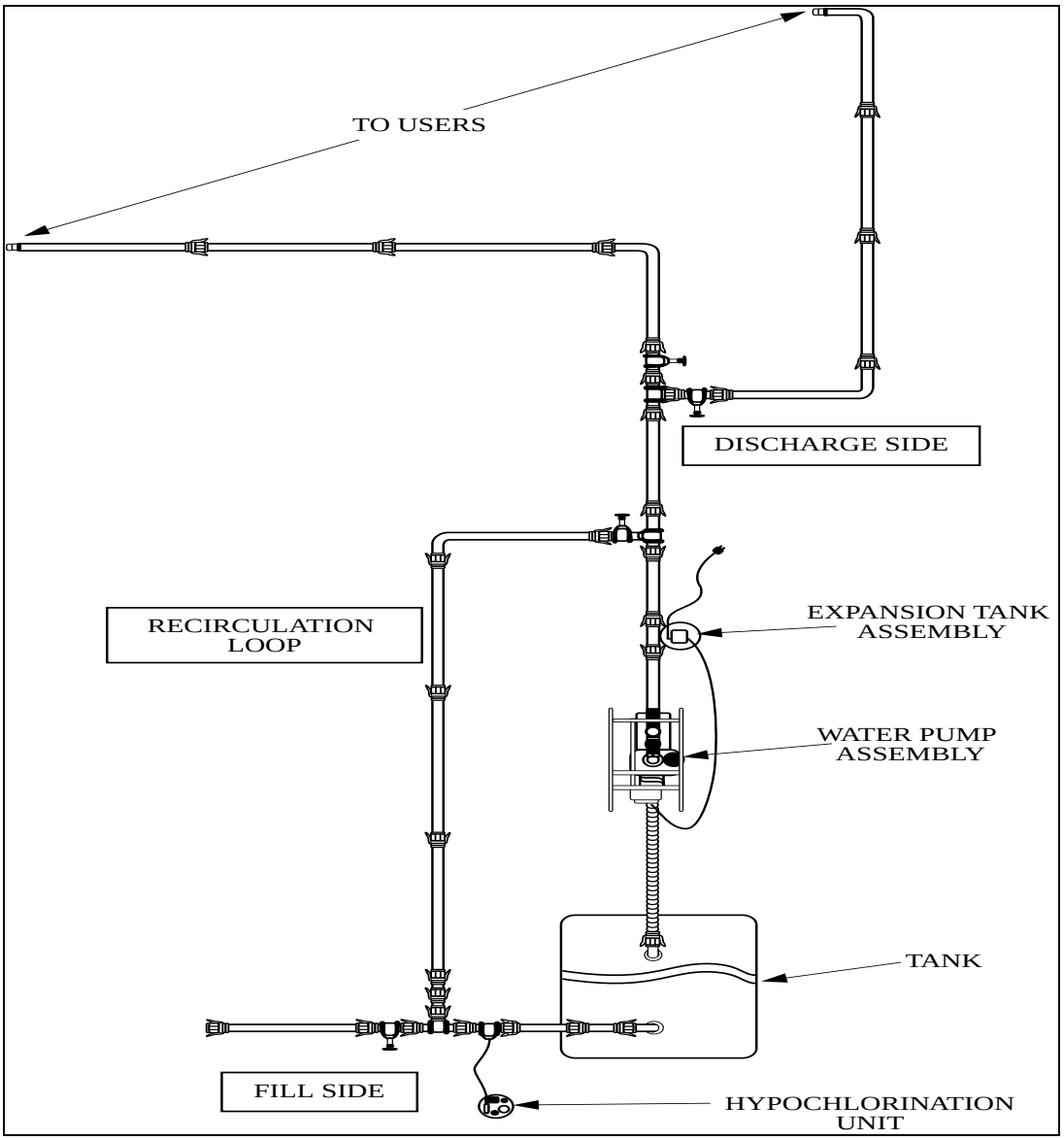

Figure 3-7. Potable Water Distribution and Storage Subsystem

3-31. A FP module contains one potable water distribution and storage subsystem. Major components of the subsystem are listed below

- Four 20,000-gallon collapsible fabric water tanks
- Discharge hose
- Electric water pump
- Pressure tank/switch assembly
- Valves, fittings, nozzle kits, and accessories

- Four 400-gallon water tank trailers with small mobile water chillers
- Four expansion tank assemblies
- Four hyperchlorination units

3-32. ARTEP 42-424-30 MTP contains Crew Drill 42-2-D0018, and 42-2-0019 for the setup, operation, and dismantling of the water storage and distribution subsystem. Available publications on the potable water distribution and storage subsystem are:

- TM 10-5419-200-12
- TM 9-6150-226-13
- TM 9-6150-226-1-23P
- TM 10-4130-237-14
- TM 10-4310-237-24P
- TM 10-6630-246-12&P
- TM 5-4610-228-13&P
- TM 5-5430-225-12&P
- TM 5-5430-226-12
- TM 5-5430-227-12&P
- TM 9-2330-267-14&P

GRAYWATER COLLECTION SUBSYSTEM

3-33. The Graywater Collection Subsystem collects, stores, and disperses graywater from the food service subsystem, containerized batch laundries and portable field shower assemblies. It consists of two 20,000-gallon collapsible fabric tanks for collection, PVC pipe, suction/discharge hoses, assorted fittings, and valves and connector kits to interface to subsystem's sewage ejection pumps. To move graywater off-site, a mobile tank and pump truck or two 125-GPM pumps can be used. An optional tank draining kit (with a 125-GPM pump) is available when graywater is pumped into a municipal sewer system or field-expedient disposal site. Four soldiers are required to set up the 20,000-gallon tanks. QM FP Company is not authorized appropriate personnel to setup, operate, and maintain the graywater subsystem. This is a responsibility of the engineering assets within the corps or area support group.

POWER GENERATION SUBSYSTEM

3-34. The Power Generation Subsystem can provide electrical power needed to operate a FP module. The system is divided into nine power generation clusters, strategically placed in support of one or more of the module subsystems. See Figures 3-8 for sample layout of a cluster. Each cluster contains:

- Three TQGs
- 500-gallon collapsible tank, and liner (maintained and operated by 77F personnel)
- Two junction boxes
- Four P-DISE
- Cables

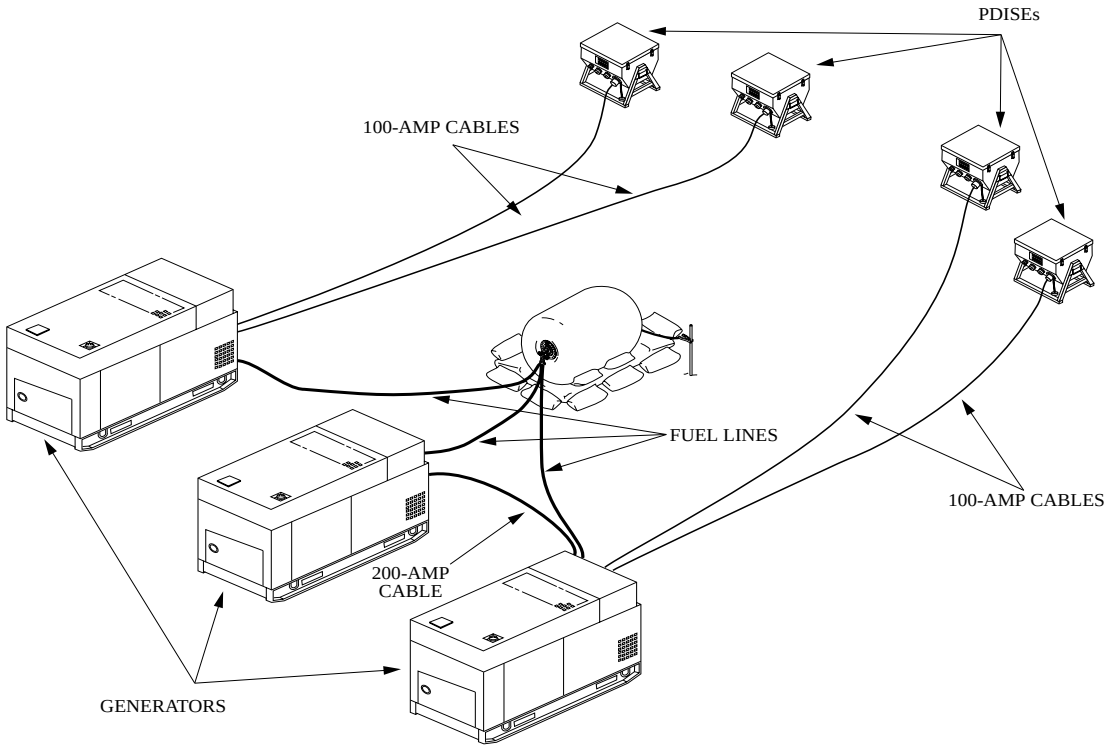

Figure 3-8. Layout of a Power Generation Cluster

3-35. The generators are operated on a two-on/one-off rotating duty cycle. See Table 3-2 for suggested schedule. At no time, will all three generators be operating simultaneously. When commercial power or Army Prime Power is available and used, a power distribution loop and step-down transformers are required and will be provided and maintained by the Prime Power Team. Two soldiers are required to lay out and install the PDISEs, junction boxes and cables. A forklift is required for positioning the TQGs. The 500-gallon drum with liner will be installed and operated by the petroleum and distribution section personnel.

Table 3-2. Power Generator Schedule.

	Day 1																							
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Gen. A	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								■	■	■
Gen. B	■	■	■	■	■	■	■	■								■	■	■	■	■	■	■	■	■	■
Gen. C									■	■	■	■	■	■	■	■	■	■	■	■	■	■			

3-36. ARTEP 42-424-30 MTP contains Crew Drill 42-2-D0015, 42-2-D0016, and 42-2- D0017 for the setup, operation, and dismantling of a power generation cluster. Available publications on the power generation subsystem are:

- TM 10-5419-200-12
- TM 9-6150-226-13
- TM 9-6150-226-23&P

OPTIONAL COLD WEATHWER KIT

3-37. The Cold Weather Kit is not standard equipment for the FP module. If operations are anticipated in temperatures below 32°F, then a cold weather kit needs to be requisitioned along with the module. Specific heaters and TEMPER components will need to be installed during setup. See Appendix C for a list of items contained in the Cold Weather Kit. Major components of the kit include:

- 96 ASH
- 64-foot TEMPERs for the water storage tanks
- Heat-traced hoses for the water distribution subsystem
- Insulated flooring for specific TEMPERs
- Additional TEMPER for WWVT/T
- Tools